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An analysis of the impact of changes in the officer education system on the Army's transient, holdee, and student account

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THESIS

AN ANALYSIS OF THE IMPACT OF CHANGES IN THE OFFICER EDUCATION SYSTEM ON THE ARMY'S TRANSIENT, HOLDEE, AND STUDENT ACCOUNT

by

Arthur J. Hoffmann, Jr.

June 2004

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13. ABSTRACT (maximum 200 words)

The United States Army is making changes in the Officer Education System for 2nd lieutenants to majors. These changes affect the size of Transient, Holdee and Student account (THS). The current Officer Basic Course changes to a two-phased system called Basic Officer Leadership Course (BOLC II and III). A twenty-week Captains' Career Course (CCC) replaces the current CCC and Combined Arms and Service Staff School (CAS3). Currently, Command and General Staff College (CGSC), where 50% of a year group attends resident CGSC, shifts to a two-phased approach with a Common Core Course and a Career Field Qualification Course. This thesis includes an Excel simulation model producing monthly predictions for six years for officers in THS account because of schooling. Assignments are Permanent Change of Station (PCS), Temporary Duty (TDY) Enroute, or TDY and Return. Therefore, if 30% of majors attend Officer Education System (OES) as a PCS or TDY Enroute, the THS account sees a man-year increase of between 166 and 552 personnel. For CCC, if 30% of captains attend CCC as PCS/TDY Enroute, THS shows a man-year decrease of between 1162 and 1171. When the new BOLC education system was simulated, the THS account showed a man-year increase of between 172 and 242 when compared to the current OBC.

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AN ANALYSIS OF THE IMPACT OF CHANGES IN THE OFFICER EDUCATION SYSTEM ON THE ARMY'S TRANSIENT, HOLDEE, AND STUDENT ACCOUNT

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ABSTRACT

The United States Army is making changes in the Officer Education System (OES) for officers in the ranks between 2nd lieutenants and major. These changes affect the size of Transient, Holdee and Student account (THS). The current Officer Basic Course will change to a two-phased system called Basic Officer Leadership Course (BOLC II and III). A twenty-week Captains' Career Course (CCC) will replace the current CCC and Combined Arms and Service Staff School (CAS3). Command and General Staff College (CGSC), which 50% of each year group attends in a resident status, will shift to a two-phased approach with a Common Core Course and a Career Field Qualification Course.

This thesis describes the implementation of an Excel simulation model producing monthly predictions, for six years, of the number of officers in THS account because of schooling.

Schooling assignments are Permanent Change of Station (PCS), Temporary Duty (TDY) Enroute, or TDY and Return. If 30% of majors attend Officer Education System as PCS or TDY Enroute, the THS account will see a man-year increase of between 166 and 552. If 30% of captains attend CCC as PCS or TDY Enroute, the THS will show a man-year decrease of between 1162 and 1171. When the new BOLC education system was simulated, the THS account showed a man-year increase of between 172 and 242 over the current OBC.

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LIST OF ABBREVIATIONS

ACC	Army Competitive Category
ATRRS	Army Training Requirements and Resources System
AWOC	Advanced Warfighting Operations Course
BOLC	Basic Officer Leadership Course
CAS3	Combined Arms and Service Staff School
CCC	Captains Career Course
CFD	Career Field Designation
CGSC	Command and General Staff College
FY	Fiscal Year
HRC	Human Resources Command
ILE	Intermediate Level Education
OAC	Officer Advanced Course
OAS	Officer Accession Student
OBC	Officer Basic Course
OES	Officer Education System
OPCF	Operations Career Field
PCS	Permanent Change of Station
TAPDB	Total Army Personnel Data Base
TDY	Temporary Duty
THS	Transient, Holdee and Student Account
TRADOC	Training and Doctrine Command
USAR	United States Army Reserves

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briefings and memoranda about the OES, he also gave me sage advice on how to obtain information that was not within his purview.

EXECUTIVE SUMMARY

The Army is in the process of altering its Officer Education Systems (OES) for officers in the ranks of second lieutenant to major. Changes being considered in the new OES include number of officers attending each class, length of each class, and method of travel to each course, Permanent Change of Station (PCS) or Temporary Duty status.

The Strength and Forecasting Division is primarily concerned with how these changes will affect the Transient, Holdee and Student (THS) account. The THS account is a list of those soldiers not assigned positions in the operational army. If an officer attends school in a Permanent Change of Station (PCS) or Temporary Duty (TDY) Enroute status, he or she will be counted in the THS account. If the officer attends school in a TDY and Return status, he or she will not enter this account.

Further clouding the issue is the fact that these changes are not happening at once, and not all details have been determined. They are being phased in through FY2006. Therefore, the full impact of the changes is best benchmarked starting in FY2007. To address the issue of the impact on the THS account due to the changes in the OES, we have developed a simulation model in Excel that schedules officers for these OES classes until the end of FY2009. To increase simulation speed and achieve better random number generation, we used the Crystal Ball add-in for Excel.

Using an aggregate class of officers, the model simulates time in transit before a course, then the time spent at the course, and, finally, the time spent traveling

to his or her next duty station. Each class is simulated, and losses and recycles are determined from historical data to arrive at a monthly class size. All classes offered are then combined, with before and after transient time, to arrive at the number of students in the THS account due to OES.

Since the choice of PCS or TDY Enroute will have an effect on the THS account for captains and majors, we used various proportions to establish a range of possible outcomes. For the majors' Common Core Course and qualification, if 30% of these officers attended PCS or TDY Enroute, then the man-year increase in the THS account would be between 166 and 552. For captains, if the same 30% percentage were PCS or TDY Enroute, the THS account would show a man-year decrease of between 1162 and 1171. Finally, lieutenants would see a man-year increase in the THS account of between 172 and 242.

I. INTRODUCTION

A. BACKGROUND

Currently, the Army uses a reporting system in which Army Officers who attend professional schooling are accounted for in the Transient, Holdee, and Student (THS) Account. The individuals accounted for in the THS Account do not fill a position in the Operational Army (Jehle, 2003). There is a delicate balance needed between the number of officers attending Officer Education System (OES) schools and the number needed to man positions in warfighting units. Fewer officers in the THS Account leave more officers available for operational assignments benefiting the Army's current commitments (Hovda, 2003).

Filling more unit positions may not be a solution since it might be done at the expense of officers attending OES schooling. Although this would produce some short-term gains, it may be detrimental to the long-term health of the Army's Officer Corps. Likewise, favoring schooling too heavily would possibly influence the Army's ability to fill operational positions. Through changes to the OES schooling policies, the Army is looking to achieve a balance in the midst of a very fast-paced operational environment (Hartley, 2003).

The Army Deputy Chief of Staff for Personnel, G-1, determines the authorizations and allocations of officers in the Army by category. The Army G-1 determines a breakdown of the total number of officer authorizations for each Army Competitive Category (ACC) and a forecast for the number of officers who are in the THS account. The actual number of allocations for each competitive category is then

determined by adding the authorizations plus the THS forecast. These allocations are used for budget, promotion and accession calculations (Hartley, 2003).

Recently, the Department of the Army decided to change the OES. These changes will occur for officers in the ranks of 2nd lieutenant to major. When an officer attends a course included in the OES, and this attendance is in conjunction with a PCS assignment, he or she counts as part of the THS account. Changes to the OES include the length of courses, the number attending different courses, and the nature of the officer's travel to the course, PCS or TDY Enroute. These changes began in 4th Quarter of FY2003 and will be phased in until full implementation in 4th Quarter FY2006 (Hovda, 2003).

When an officer attends a school that is part of the Officer Education System, he or she can attend the course on a Permanent Change of Station (PCS), Temporary Duty (TDY) Enroute, TDY and Return or as an Officer Accession Student (OAS). An officer who attends in a PCS, TDY Enroute, or OAS status will enter the THS account. An officer who attends TDY and Return will not enter the THS account (Jehle, 2003).

When starting a move to an OES school, an officer enters a transient status when he or she departs his unit. The officer will stay in a transient status until such time as he or she arrives at school. If this is a PCS move, the officer will then change to a student status upon arrival at the school location. Once an officer completes schooling, another status change will take place and the officer will again be coded in a transient status. Although these status changes occur daily, the Army G-1

determines officer populations on the last day of each month regardless of the day on which changes occurred (Kerbel, 2004).

Since lieutenants, captains, and majors attend schools specific to their level of training, each group will be discussed independently. Additionally, 1st and 2nd lieutenants who will enter their entry-level training are discussed collectively as Officer Accession Students (OAS). Currently, the Army is planning a transition in schools from the Officer Basic Course (OBC) to the Basic Officer Leadership Course (BOLC) Phases II and III for OAS. The full implementation of BOLC is scheduled to be in place by the 4th Quarter of FY2006. OBC will terminate upon the full implementation of BOLC. The number of lieutenants attending initial training is not dependent on whether they attend OBC or BOLC II and III, but on the number of newly commissioned officers the Army needs that year to meet current and future requirements (Cavin, 2003).

Current Course	Future Course	Implementation Date	Rank
Officer Basic Course (OBC)	Basic Officer Leader Course (BOLC) II and III	4th Quarter FY2006	Newly accessed lieutenants
Captain Career Course (CCC) 18 weeks	Captain Career Course (CCC) 20 weeks	3rd Quarter FY2006	Captains and promotable 1st lieutenants 3-6 years
Combined Arms and Service Staff School (CAS3)	Canceled and incorporated into CCC 20 weeks		
Command and General Staff College (CGSC)	ILE Common Core	4th Quarter FY2005	Majors and promotable captains 10-14 years
	Advanced Warfigthing Operations Course (AWOC)		
	Career Field Qualification Course		

Table 1. Course Implementation Schedule

OBC is a technical course designed to prepare an officer for success in his or her branch. BOLC II is a course that will be common to all branches and the courses will consist of officers from different specialties. Officers will then attend BOLC III that will be similar in structure to the current OBC (Hartley, 2003).

Previously, an officer went to one installation for OBC for a period of eight to nineteen weeks for initial training. Now all officers attend BOLC II, a common core course of six weeks, and then change duty stations to receive branch-specific training in BOLC III for eight to fourteen weeks. BOLC II is expected to be conducted at four locations, currently planned to be Fort Benning, Fort Bliss, Fort Knox, and Fort Sill (Harrington, 2004).

Captains now attend the Captain's Career Course (CCC) and the Combined Arms and Service Staff School (CAS3). CCC is a branch-specific school that focuses on the tactical skills necessary for success as a company-level commander and an officer attends this course in a PCS status. CAS3 was designed to prepare an officer for assignments on a battalion or higher-level staff. Army captains attended CCC for 18 weeks as a permanent change of station and were part of the THS account. Officers then attended the five-week long CAS3 course. In the future, this will change to the Captains Career Course of 20 weeks. CAS3 has been cancelled and incorporated into the 20 week CCC. An officer will attend CCC in a PCS, TDY Enroute or TDY and Return status. Full implementation for the 20 week CCC is scheduled for 3rd Quarter of FY2006 (Harrington, 2004).

Majors currently attend the Command and General Staff College (CGSC) with approximately 50% of a year group

attending resident CGSC. Resident CGSC is a ten-month course offered once each year at Fort Leavenworth. Those officers not selected for resident attendance must take the course through distance learning or attendance at one of the Reserve Component CGSC battalions that also conduct this training (Hartley, 2003).

Under the new OES, all majors receive the Intermediate Level Education (ILE) Common Core Curriculum during a three-month course taught at Fort Leavenworth, Fort Belvoir, Fort Gordon, Fort Lee and the Naval Postgraduate School (Harrington, 2004). Operations Career Field (OPCF) majors attend the ILE Common Core Course at Fort Leavenworth in a PCS status. Immediately after ILE, the majors who are part of the OPCF attend the Advanced Warfighting Operations Course (AWOC) for seven months (Ware, 2003).

Majors in one of the career fields outside the OPCF will attend the ILE Common Core Course at one of the other four locations in a TDY and Return status. Additionally, those officers will attend Functional Area Qualification Courses that will last between two and 179 weeks and will not necessarily occur immediately following the ILE Common Core Course. Officers would attend school in TDY or PCS status. Full implementation for ILE is scheduled for 4th Quarter of FY2005 (ILE Full Implementation, 2004). There is no plan to send non-operational officers to Fort Leavenworth for attendance at CGSC or the ILE Common Core followed by AWOC (Ware, 2003).

The changes in schooling will cause the current system, used to predict the size of the THS account, to become less effective. This will cause problems in

managing and budgeting for the Army's Officer Strength. This thesis aids the Army G-1's Strength Forecasting Division in analyzing the impact of the new OES and allows for improved forecasting of the THS account (Hovda, 2003).

B. OBJECTIVES

The primary objective of this thesis is to explore and quantify how changing the dynamics of officer schooling will affect the number of officers in the THS account. School length changes, as well as the status changes from PCS assignments to TDY and Return assignments, are likely to have a significant impact on the THS account (Hovda, 2003). Our research quantifies the effects on the THS account of the proposed changes described in the previous section. This is accomplished by simulating different flows of officers to various schools and calculating an observed outcome. The input parameters for the current procedures, as well as those for the proposed changes, were studied to determine the expected number of officers in the ranks of second lieutenant through major who are predicted to be in the THS account because of OES schooling. The simulation predicts up to six years out.

The flow and number of lieutenants transitioning through BOLC II to BOLC III will affect the number of OAS students (Hovda, 2003). For lieutenants, we analyzed the impact of changes from the current OBC to the new BOLC two-phased course that will be implemented. For captains, we analyzed the impact on the captains' population by simulating the schooling in the old and proposed schooling choices.

For majors, we analyzed the effects on the THS population due to changes from the current 10-month CGSC course to the new ILE configuration, which offers a 10-month course for operational officers and a 3-month component for functional area officers. We further analyzed a recently proposed change to the new system that would establish a new five-month curriculum to replace the 10-month course (Galing, 2004). This five-month course would be conducted twice a year instead of the current once a year.

C. SCOPE, LIMITATIONS AND ASSUMPTIONS

In this thesis, we developed a simulation model in Microsoft Excel to schedule officers for all possible schools. The model facilitates predicting the number of officers in the ranks of second lieutenant through major who will be in the THS account because of Officer Professional Education through the next six years. The model incorporates all Basic Branches for lieutenants and captains and all Career Fields for majors. It uses an add-in, Crystal Ball, in order to run replications for the simulation and to collect statistics for further analysis. Model parameters allow sensitivity analysis of changing school lengths, increasing or decreasing officer accessions or attrition, changing fill rates and travel time to and from school.

This model is not intended to determine if the Army is capable of implementing these changes to the OES. Concerns have been raised about the feasibility of implementing the new OES, but the Army has already begun the conversion process. Although not designed as a feasibility study, the

model could be adapted to analyze the Army's ability to meet these changing requirements. For flexibility, we have developed a population model that would allow for this analysis. The details are in Chapter II, Section F.

Little investigation has been done on this specific topic; however, there are some related studies with similar ideas. Most research tends to look at optimizing available resources, whereas we studied this problem from the perspective of predicting the outcome of the planned changes.

The most closely related research was conducted by Hovda (Hovda, 2002) who studied the effects of the Army's proposed change to training of newly commissioned second lieutenants. He developed a simulation model in the Java programming language and sought the optimal policy setting for implementation of BOLC. Hovda simulated individual officers as they progressed through their initial training and recommended policy changes that would minimize the time a lieutenant spends in the THS account.

Brown (Brown, 2002) looked at the optimal allocation of United States Army Reserves (USAR) enlisted training seat allocation based on potential mismatches between Basic Training and Advanced Individual Training. His model, like the one in this thesis, requires input from Total Army Personnel Data Base (TAPDB) and Army Training Requirements and Resources System (ATRRS). However, it differs in the fact that it is an optimization based on available resources.

Corbett (Corbett, 1995) developed an optimization model designed to allocate officer accessions and evaluate

the impact on potential specialty imbalances. It maximizes the ability to meet forecasted authorization requirements.

Sickorez (Sickorez, 2003) examined United States Air Force officer accessions classified into different career fields. He developed an optimization model that balances near-term needs with those of future years. The model was developed in Java and allows the user to prioritize fills in various career fields. Sickorez's thesis differs from ours in that it attempts to optimize the allocation of officers to different career fields. We analyze an expected allocation and predict an outcome using simulation.

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II. DATA OVERVIEW AND METHODOLOGY

A. OVERVIEW

In order to simulate the total time in the THS, we needed to capture the transient time before schooling, the time in the OES School, and the time in transit after completing school. Originally, we attempted to use data analysis techniques, but the dataset was not reliable. The problems encountered are described below in section B. We obtained data on time in transit for before and after schooling from the Total Army Personnel Data Base (TAPDB) in order to predict future behavior of transient time. We used historical data for the years of FY2000 to FY2003 from the ATRRS system for maximum class size, starting class size, number of losses, and the number of recycles as inputs to the simulation which led to a calculation of the number of students in a given course in a particular month. An officer who recycles must repeat his or her course and will remain at the school until he or she can resume the course.

B. TIME IN THS DATA EXPLORATION

We encountered difficulties when analyzing the data set pertaining to the time in the THS. The data was obtained from the TAPDB. At first, 83 months of data for students who had completed their schooling were brought into the S-Plus statistical package for analysis. The initial intent was to develop some parameters for time in the THS account that could feed into a simulation model. Due to possible reporting discrepancies, data was unreliable for predicting the time in the THS.

According to Army Regulation 680-29, an officer with fewer than five months at a school should not be coded as a student, unless he or she is in officer accession training (Department of The Army, 1996). Of the 48,191 student records in the data set, 16,781 spent fewer than five months in the account. Losses can account for some of these discrepancies, but not nearly enough to allow for inclusion of the time in the THS data into this thesis.

The cause of these discrepancies has been brought to the attention of the database manager. One possibility is incorrect business practices for inputting data in the TAPDB at the individual schools (Kerbel, 2004). For example, a student who departs his or her unit for school, and is sent TDY and Return, should not be coded as a student and placed in the THS account. Only those students who attend school as a permanent change of station or TDY Enroute to their next duty station should be counted. Further analysis as to why these discrepancies exist is outside the scope of this thesis.

C. TRANSIENT TIME DATA DEVELOPMENT

Data for time in the transient status before and after schooling was acquired from the TAPDB database for the last six years. The number of months a student spent in transient status before and after schooling was obtained and filtered by rank and month. Since the database provides an end-of-the-month snapshot, the large majority of students were listed as being in transient status, before or after school, for zero months. For example, a student who departed his or her old duty station and reported to school in the same month would be reported as

having zero transient months. Since very few officers spent more than four months in transient status, we aggregated anything greater than four into an entry for 4+ months.

With these six years of monthly data, we determined the minimum, most likely, and maximum proportion of officers who spent 0, 1, 2, 3, and 4+ months in a transient status. This is utilized in the simulation model to generate random transient times for students in transient status before and then after an OES school.

D. SCHOOL ALLOCATION TIME DATA DEVELOPMENT

1. Past Classes

The Army Training Requirements and Resources System (ATRRS) has several uses. It performs the scheduling of students, courses, instructors and documentation of attendance for all Army Schools. ATRRS stores information in its statistical portal, which is the source of the historical schooling information. The maximum, minimum and optimal class sizes are not only for Active Duty officers, but also include officers from the USAR, the National Guard, other services and foreign countries (ATRRS, 2004).

The historical data gives a representation of the Army's ability to fill its scheduled classes. This use of historical fill rates provides a reasonable expectation of what the Army can accomplish as far as filling class seats.

For each of the CCC, CGSC and ILE Common Core courses, we obtained class information for FY2000 to FY2004 on Active Duty Officers. With this information, we computed a proportion of capacity actually filled. We refer to this proportion as the Starting Fill Rate. This Starting Fill Rate was determined for all classes of a particular type

and then the minimum, most likely, and maximum class fill proportions were calculated in the simulation.

2. Future Classes

Schedules for future classes were obtained from ATRRS, the Training and Doctrine Command (TRADOC) and the Officer Division, Directorate of Personnel Policy, Office of the Deputy Chief of Staff, G-1. For FY2004 and FY2005, ATRRS has the current schedules for all courses including start dates, end dates and maximum class sizes. For BOLC II & III and the CCC, the information was obtained from TRADOC for the years of FY2006 and FY2007 and is contained in Appendix A. BOLC II and III training seats will not be determined until FY2005 (TRADOC MOI, 2003). The information on major ILE qualification was obtained from the Army G-1 and is contained in Appendix A. As of publication of this thesis, not all major functional areas have released qualification course information.

For these future courses, we assume the loss rate and recycle rate are similar to like courses. The flow used to fill scheduled courses during the simulation is based on historical fill rates from similar schools. For example, we assume that new Armor CCC will have patterns of fill similar to those of old Armor CCC.

E. OFFICER ACCESSIONS

To determine the breakdown of lieutenants accessed onto active duty each year, we used six years of historical data broken down by branch. From the six years of historical data, we created the ratio of lieutenants for each branch compared to the total number of lieutenants. We calculated the minimum, most likely and maximum value and

then used these as inputs to a triangular distribution to simulate the proportion of lieutenants in each branch. We apply this proportion to the total number of lieutenants expected on active duty for each year in order to simulate the number accessed into each branch. The value of the largest branch, Infantry, was chosen to ensure that these percentages add up 100%.

Once the annual allocation by branch was determined, we simulated a monthly breakdown by branch using historical percentages of the number of officers in a given branch that accessed each month. To constrain these values to add up to 100%, we used the month of May to adjust the total to 100%. For each branch we totaled all months excluding May. We then subtracted this total from the annual total for each branch calculated. This remainder represents the accessions for the month of May.

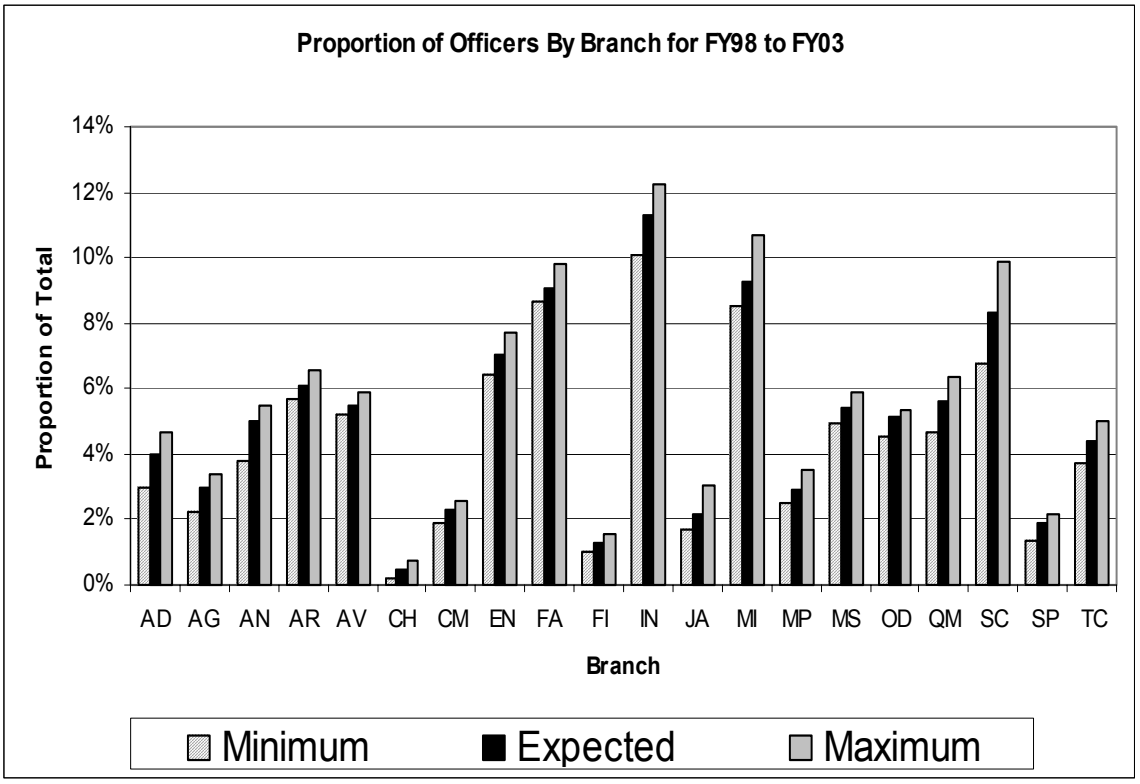

FIGURE 1. SIX YEAR BRANCH PROPORTIONS

F. POPULATION DATA DEVELOPMENT

To develop a model for the officer population, we needed to consider the distribution of officers by branch for the earliest year group and 17 years into the future in order to cover all possible years running in the simulation. Inputs necessary for the simulation include the current strengths for each year group at the end of the last fiscal year, broken down by branch and career field. This breakdown was obtained from the TAPDB database.

The U.S. Army Human Resource Command (HRC) maintains continuation rates of officers based on the number of years in service (Dzwonchyk, 2004). These rates are for FY1999 to FY2001. Using these continuation rates, year group populations are calculated by multiplying the continuation

rate for a given branch or career field for their number of years in service and multiplying it by the previous year's population. This continuation rate is then iteratively applied to the previous year, in order to determine a predicted population for a certain branch or career field in a given year across the 17-year time span. Again the value of the largest branch, Infantry, was chosen to ensure that these percentages add up 100%.

At the ten-year mark, Operations Career Field (OPCF) officers are considered for a Career Field Designator (CFD) in conjunction with their promotion board (Dzwonchyk, 2004). HRC provided five years of CFD board results. This included the number designated from each OPCF to each career field. We then calculated the minimum, most likely, and maximum proportion going from each OPCF to each career field for use in the simulation model to produce CFD board results (Dzwonchyk, 2004).

G. ASSUMPTIONS

The model includes these assumptions:

1. Class start dates and end dates for FY2006 through FY2009 will be the same as in FY2005.

2. Officer accession flow will be similar to the flow in the past three years.

3. The distribution of officer accession is reasonably modeled by the triangular distribution. The triangular distribution is used because there are very few data points for the historical data (Winston, 1994).

4. BOLC II time is held constant at two months which includes both actual BOLC II class time and travel time to BOLC III location.

5. Future proportions of class starting fill rate will remain within the limits determined by the historical data.

6. The distribution of class starting fill rate is reasonably modeled by the triangular distribution. As above, the triangular distribution is used because there are very few data points for the historical data (Winston, 1994).

7. Losses are equally likely to occur in any month of the course.

8. Recycle rates for classes will be distributed in a manner similar to those of like classes.

9. The distribution of recycle rates is reasonably modeled by the triangular distribution. Once again, the triangular distribution is used because there are very few data points for the historical data (Winston, 1994).

III. MODEL DEVELOPMENT

A. GENERAL MODEL DESIGN

The model is a discrete time step simulation in EXCEL using the Crystal Ball software for improved simulation speed and random number generation. It performs simulations for School Scheduling, Transient Time before Schooling, and Transient Time after Schooling. Totaling these factors produces the time in the THS account due to OES schooling. Class sizes, number of losses, the number of recycles, the number of transient months, and the number of new officer accessions each year are chosen at random, according to specified distributions. The model was run for the current OBC, CCC, and CGSC configuration, and then repeated for the new schooling policies using the same random number seeds.

Using Crystal Ball, the analyst can select the number of times to repeat the simulation. Crystal Ball calculates summary statistics such as the mean and a confidence interval for outputs. For example, the number of students in OES counting in the THS is computed for each month for each rank.

B. SCHOOL ALLOCATION TIME

The number of students for each OES Course is estimated starting in October 2004 and carried out until September 2009. Starting class sizes are first calculated for all six years. If a course is offered more than once a year, each repetition is treated separately. The model has a separate entry for each time a course is offered.

School information is maintained on one spreadsheet for input into the schooling time calculation. The

simulaton uses inputs of start month, end month, attrition rate (minimum, most likely & maximum), recycle rate (minimum, most likely & maximum), starting fill rate (minimum, most likely & maximum), and the next like course offered, to determine the number of simulated officers in a particular course.

The first logical check for a particular school time calculation is that the current month lies between the start and end months for the course. If this test is passed, and if the starting month and the current month are the same, the class size is equal to the starting class size for that year. As the next step is taken for the second month, a random loss rate is calculated, using a triangular distribution based on the historical attrition. This loss rate is applied to the number in school from the previous month to simulate an updated end-of-month total of students in the course. These random losses are assumed to be equally likely to occur in any month. This cycle repeats for each month after the start month, but does not include the end month of the course. If this check fails, then a test is made to see if the current month lies between the end month of the last course and the end month of the next available course. If this requirement succeeds, then the recycles stay in school until the end month of the next available course. If this check fails, then there are no recycles remaining, and a zero is entered for the number of students in the course for this month.

Recycles stay in the class size since they will still be present as students. After the class graduates, these recycles will remain until the graduation of the next available class. This process is repeated at every

iteration of a course every year. In all up to 200 classes were scheduled each year for OAS, 151 for captains, and 44 for majors. Figure 2 provides an extract for one set of classes during one year from the school allocation spreadsheet, which simulates the number in the THS account due to schooling.

Course	Start Month	Course Length	End Month	Next Class	Next Class End Mo	Max Class Size	Class Start Size YR0	Class Start Size YR1	Recycles Class 0	Recycles Class 1
IN1	1	5	5	IN3	12	160	94	108	2	2
IN2	3	5	7	IN3	12	160	97	85	4	2
IN3	8	5	12	IN1	5	160	79	89	6	2
IN4	9	5	2	IN2	7	160	88	86	4	5

Month	10	11	12	1	2	3	4	5	6	7	8	9
IN1	2	2	0	108	106	104	103	2	2	2	2	2
IN2	4	4	0	0	0	85	84	83	82	2	2	2
IN3	73	71	6	6	6	6	6	0	0	0	89	88
IN4	85	84	83	82	5	5	5	5	5	0	0	86

FIGURE 2. SCREEN EXAMPLE OF THE SCHOOL ALLOCATION SPREADSHEET

C. TRANSIENT TIME

The model simulates the number of students spending one to four months in a transient status before and after the course using the historical transient information discussed in Chapter II Section C. Those who spend zero months in a transient status before schooling are not counted because this is an end-of-the-month snapshot and these totals are counted in the school allocation portion of the simulation.

Using the historical proportions for each rank as input to a triangular distribution, the model simulates a proportion of students who will be in transient time for 1, 2, 3, and 4+ months before the course. This simulated

proportion, for each month, is then applied to the starting class size to calculate the number of students in a transient status for the four months leading up to the course. Students who initiated transient time earlier will be added to a count for the following months. For example, if fifteen officers were simulated to have 4+ months in transient time, and twenty-five had three months, then the number in transient time at three months before the course is 40. This cycle continues until the start month of the course, and then the number of transients before returns to zero until four months before the next class start date.

The procedure is similar for the transient time after the school ends. At the end month of the course, those with zero transient time are not counted since they do not appear in a transient status at the end of that particular month. Those who appear as transients at the end of the graduating month will be the number of students with 1, 2, 3, and 4+ months of transient time. For example, suppose 100 students graduate a course in March and 80 have transient time zero: ten students have transient time 1; five students have transient time 2; four students have transient time 3; and one student has transient time 4+. Then, at the end of March, when the count is determined, those 80 students who are transient time 0 are simulated to have departed school and arrived at their next duty station. Then there are twenty transients from that course who remain in the simulated THS account in the graduating month. Likewise, one month after a course graduates, those remaining in the simulated THS account are those with 2, 3, or 4+ months of simulated transient time.

This procedure is followed for each repetition of a course. The cycle starts four months before the start date and ends four months after the graduation date.

D. OFFICER ACCESSIONS CALCULATION

Simulation for OAS is slightly different because a breakdown by branch must first be simulated. This breakdown uses the historical information discussed in Chapter II to determine starting class fill rates and then applies it to the maximum number of students in a class to determine a class size.

1. Simulation of Branches for Officer Accessions

We used historical information (minimum, most likely, and maximum proportions) computed for lieutenants' accessions over the past six years as an input to a triangular distribution to simulate the proportion of lieutenants assigned to each of the basic branches. The Judge Advocate General, and the medical specialties, are not considered because it has not been determined if these officers will attend BOLC II. For each of the next six years, a proportion was simulated and applied to the expected number of lieutenants to be accessed in order to calculate a simulated number of accessions for each branch. The value of the largest branch, Infantry, was chosen to ensure that these percentages add up 100%.

2. Determination of the Scheduling of OAS

Once the branch breakdown for OAS is determined for each year, the students must be scheduled to attend schooling. This flow of officers is determined using the monthly proportion of officers accessed each month in each branch. The historical minimum, most likely, and monthly

branch proportions are inputs to a triangular distribution, and a simulation of the monthly proportion of officers accessed in the month is calculated. The simulated monthly proportion is applied to the annual number of accessions to determine the number of officers accessing in a particular month. The month of May was chosen to ensure that these percentages add up 100%.

IV. RESULTS AND ANALYSIS

A. EFFECTS ON NUMBERS OF CGSC ELIGIBLE OFFICERS

1. Areas of Analysis

We will conduct several comparisons for CGSC attendance at the majors' level. First, we simulate the 50% CGSC option as a baseline to which to compare changes. The baseline for the simulation is the current capacity at Fort Leavenworth. This baseline is compared to the situation with OPCF going to Common Core and AWOC, while the non-OPCF goes to the Common Core. Next, the simulation of major qualifications is run to see its possible effects. We compare the number simulated using the qualification classes to the baseline to determine a change. Finally, we examine the option of two five-month CGSC classes each year with various percentages of officers attending either TDY Enroute or TDY and Return. To determine the increase from the current systems, we compared majors in three areas. The baseline for the comparison is the current capacity at CGSC that supports the current policy of 50% of each year's group attending resident CGSC. First, we compared this baseline to the new ILE Common Core Course and AWOC courses. Second, we compared the baseline to the entire majors' qualification system. Last, we compared the five-month CGSC course, offered two times a year, with the baseline.

2. Current CGSC Compared To The New ILE Common Core Course and AWOC

When simulating the number of officers in the THS account due for schooling, the FY2003 capacity of 1111 officers was used as the maximum. The capacity at Fort Leavenworth is planned to increase the student capacity in

FY2004 and again in FY2007. These planned capacity increases are included for FY2004-05 and FY2007-08 to determine the effect of these increases on the expected attendance as compared to the current ten-month CGSC course. Also the different Common Core Course locations capacities ranges from 40 to 72 and this is considered when making comparisons to the baseline.

When we compare the new ILE Common Core Course and AWOC with the current system, there is an expected man-year increase in the THS account of between 220 and 672 for each year of FY2006 to FY2009. Table 2 shows the predicted increases.

	PCS or TDY Enroute	PCS and Return	FY 2006	FY 2007	FY 2008	FY 2009
CGSC only with increased capacity	100%	0%	144	527	530	530
2X 5 month courses	100%	0%	255	326	390	390
New ILE CCC only	100%	0%	220	604	672	672
Old CGSC	100%	0%	0	0	0	0

Table 2. CGSC COMPARISONS OF MAN-YEAR INCREASES

It is difficult to predict the number of students attending the Common Core Course who will enter THS because they can attend in a PCS or TDY Enroute or TDY and Return Status. In order to gain a range of outcomes, we analyzed the Common Core Course using 15%, 30%, 50% and 100% of the students attending in a PCS or TDY Enroute status which means the other 85%, 70%, 50% and 0%, respectively, will be TDY and Return, and not counted in the THS. The resulting increases in the THS are shown in Table 4.

	PCS or TDY Enroute	PCS and Return	FY2006	FY2007	FY2008	FY2009
New ILE	100%	0%	220	604	672	672
New ILE	50%	50%	181	564	568	568
New ILE	30%	70%	166	549	552	552
New ILE	15%	85%	154	537	540	540

Table 3. ILE COMMON CORE MAN-YEAR INCREASES

Since THS counts are taken at the end of the FY, the increases shown just in the ending month are expected to be between 693 and 756. Table 3 shows the expected end-of-year increases due to ILE Common Core and AWOC.

	PCS or TDY Enroute	PCS and Return	FY2006	FY2007	FY2008	FY2009
New ILE	100%	0%	732	732	732	732
New ILE	50%	50%	714	714	714	714
New ILE	30%	70%	706	706	706	706
New ILE	15%	85%	699	699	700	700

Table 4. ILE COMMON CORE END-OF-YEAR INCREASES

3. Current CGSC Compared to the Entire Majors' Qualification System

Next, when the baseline of the current system is compared to the complete ILE System with qualification, further increases occur. The amount of the increase depends on the number of students who are in a PCS or TDY Enroute status. These outcomes were again simulated at 15%, 30%, 50% and 100% attending PCS or TDY Enroute and the

remainder as TDY and Return. We then compared these figures to the baseline. The expected man-year increases per year were between 216 and 737 for FY2006 to FY2009. Table 5 shows the predicted increases as compared to the baseline.

	PCS or TDY Enroute	PCS and Return	FY 2006	FY 2007	FY 2008	FY 2009
Qualification	100%	0%	343	733	737	737
Qualification	50%	50%	268	657	660	660
Qualification	30%	70%	238	627	630	630
Qualification	15%	85%	216	605	608	608

Table 5. MAJ QUALIFICATION MAN-YEAR INCREASES

Looking at the end of the fiscal year increases, the total qualification system will account for between 742 and 857 additional officers in the THS at the end of each year between FY2006 and FY2009, according to the simulation. The figures for the end of the fiscal year appear in Table 6.

	PCS or TDY Enroute	PCS and Return	Month36	Month48	Month60	Month72
Qualification	100%	0%	848	857	831	849
Qualification	50%	50%	807	793	801	805
Qualification	30%	70%	773	785	767	768
Qualification	15%	85%	769	759	766	742

Table 6. MAJ QUALIFICATION END-OF-YEAR INCREASES

4. Current CGSC Compared to Two Five Month CGSC Courses

Finally, for majors, we simulated a five-month CGSC course offered twice a year, and compared those calculations to the baseline. The five-month course was simulated at 15%, 30%, 50% and 100% in order to determine the impact of PCS or TDY Enroute. The lowest man-year decrease from the baseline occurred in FY2007, when it decreased by 458. The largest man-month increase of 390 occurred in FY2009. Table 7 gives all the increases or decreases for each year compared to the baseline.

	PCS or TDY Enroute	PCS and Return	FY 2006	FY 2007	FY 2008	FY 2009
2X5 month CGSC	100%	0%	255	326	390	390
2X5 month CGSC	50%	50%	-166	-136	-107	-107
2X5 month CGSC	30%	70%	-335	-321	-306	-306
2X5 month CGSC	15%	85%	-461	-458	-455	-455

Table 7. FIVE MONTH CGSC MAN-YEAR DIFFERENCES

The end of the fiscal year increases for the scheme with two offerings per year of a five-month course shows a decrease of up to 568 officers in the THS at the end of the year. The totals by fiscal year appear in Table 8.

	PCS or TDY Enroute	PCS and Return	FY 2006	FY 2007	FY 2008	FY 2009
2X5 month CGSC	100%	0%	332	725	745	745
2X5 month CGSC	50%	50%	-195	-5	5	5
2X5 month CGSC	30%	70%	-407	-296	-291	-291
2X5 month CGSC	15%	85%	-568	-512	-513	-513

Table 8. FIVE MONTH CGSC END-OF-YEAR DIFFERENCES

B. EFFECTS ON NUMBERS OF CCC ELIGIBLE OFFICERS

We compared the current CCC and CAS3 to the proposed CCC to be held in one location with two weeks added. Since officers attend the current course with a PCS move, and the proposed CCC would use a PCS, TDY Enroute or TDY and Return move, we analyzed the proposed CCC with 15%, 30%, 50% and 100% of the officers attending in a PCS or TDY Enroute status, while the remainder are TDY and Return. This allows for an analysis of the impact of decisions involving the number of officers attending in these different situations.

Since all current CCC is done in a PCS status, we used this as a basis of comparison for the four possibilities of the proposed CCC. The new CCC shows the greatest decrease in the THS account of 1294 man-years in FY2007, and the smallest decrease of 551 man-years in FY2009. Table 9 shows all the man-year increases.

	PCS or TDY Enroute	PCS and Return	FY2006	FY2007	FY2008	FY2009
New CCC	100%	0%	-551	-553	-553	-551
New CCC	50%	50%	-995	-996	-996	-989
New CCC	30%	70%	-1169	-1171	-1170	-1162
New CCC	15%	85%	-1292	-1294	-1294	-1285

Table 9. CCC MAN-YEAR DIFFERENCES

In addition, since a count of the THS is determined on the last day of the FY, we analyzed the end-of-year impact. The end-of-year decreases to the THS account ranged between 1188 and 1905. Table 10 shows the changes across all years.

	PCS or TDY Enroute	PCS and Return	FY2006	FY2007	FY2008	FY2009
New CCC	100%	0%	-1188	-1194	-1196	-1207
New CCC	50%	50%	-1611	-1615	-1617	-1602
New CCC	30%	70%	-1779	-1784	-1785	-1763
New CCC	15%	85%	-1900	-1904	-1905	-1880

Table 10. CCC END-OF-YEAR DIFFERENCES

C. EFFECTS ON NUMBERS OF BOLC-ELIGIBLE OFFICERS

We compared the current OBC to the proposed BOLC II and III. Since either course tracks the officer as an accession student, PCS, TDY Enroute or TDY or Return is not a factor in this case. All OAS will enter the THS account.

The new BOLC II and III shows the greatest increase in the THS account of 242 man-years in FY2009, and the smallest increase of 172 in FY2007. Table 11 shows the man-year increases.

In addition, we analyzed the THS account on the last day of each FY in order to determine the end-of-year impact. The end-of-year increases to the THS account range between 301 and 354. Table 11 shows the changes across all years.

	FY2007	FY2008	FY2009
Man-Months	2063	2841	2903
Man Years	172	237	242
End-of Year	301	326	354

Table 11. BOLC II AND III INCREASES

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V. CONCLUSIONS AND RECOMMENDATIONS

A. FUTURE USES

The findings will allow the Army G-1 to predict future force structure that in turn will favorably affect the operational readiness. Inaccurate forecasting due to these changes in the OES will have negative effects on the number of authorized officers in each competitive category, the number of new officers accessed, and the personnel budgets for the Army. In this chaotic transition to the new system, continuation of current forecasting techniques could lead to future mismatches in operating strength and shortfalls in the personnel budget.

The model we developed is sensitive to course lengths and the starting fill rates. Course lengths have been set by TRADOC and the starting fill rates are based on historical data for like courses.

With these inputs, the number of majors who are in the THS due to schooling can be expected to increase up to 552 man-years. Captains will see a decrease from between 1162 and 1171 man-years. Finally, lieutenants will see an increase of between 172 and 242 man-years.

We recommend, when the Army Strength Forecasting Division produces THS forecasts for FY2006 to FY2009 they adjust the forecast based on the changes simulated in this thesis.

B. FUTURE RESEARCH

1. Major Qualification

Once details are refined as to how each career field will conduct its qualification process for majors, this simulation can be used to analyze the impact of these changes. The difficulty in this analysis will be the standard against which to compare the results. There are various courses for each functional area which majors and captains currently attend. But currently, no single qualification system exists for the entire Army. Once details such as course lengths, starting dates, and capacity for each course are determined, these schools can be entered into this model to determine the number of officers expected in the THS due to majors' qualification.

Furthermore, more analyses could be conducted on optimal course length for majors' qualification for other than operations officers. The currently planned courses range from two weeks to 179 weeks, which seems to be a wide variation. Once these qualification courses are determined, an optimization model could be developed to find the best sequencing between the Common Core course and the qualifications course.

2. Optimization of BOLC II and III Courses

The transition from BOLC II to BOLC III appears best analyzed by an optimization. Analysts can look at the optimal locations, starting times for both BOLC II and III, number of attendees (both maximum and minimum), in order to obtain an optimal solution that minimizes time in THS. To minimize this time, BOLC II end dates and BOLC III start dates would need to be synchronized in order to minimize the time between courses.

3. Cost Estimate of the Change to the OES

A thorough estimate of the changes would have to be made for the entire OES in order to gauge the cost of making these changes. The fact that majors and captains will be primarily in a TDY and Return status, this will significantly increase the costs associated with this policy change, since this status incurs the highest costs

4. Feasibility of the Changes

An analysis of the impact on units should be conducted to ensure there would not be significant grade imbalances. With so many more majors attending school, who will be performing their duties during their absence? This situation could lead to a trickle-down effect where a captain fills in for a major, and a lieutenant then fills in for the captain, all because of the major's schooling. It is true that units will have more officers assigned at the captain and major level, but this must be carefully managed. It could be done through an optimization, but the scope may be too wide for a thesis topic.

Based on recent world events, the military is in the midst of a very high operational tempo. The need for a heightened military presence takes officers away from their families for extended periods of time. Sending captains and majors TDY and Return to courses that previously were PCS will increase the officers' time away from home and job. Possibly, a Human Factors Analysis could be run to investigate the impact of these extended absences on both officers and their families.

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LIST OF REFERENCES

Army Training and Requirements System (ATTRS) (2004). http://www.army.mil/default.asp. 15 April 2004.

Brown,S.H. (2002) "Army Reserve Training Seat Allocation." Master's Thesis, June 2002.

Cavin,D.D. (2003) "Memorandum of Instruction (MOI)," Basic Officers Leaders Course (BOLC) II/III Campaign Plan. 15 August 2003.

Corbet, J.C. (1995) "Military Manpower Planning: Optimization Modeling for the Army Officer Accession/Branch Detail Program." Master's Thesis, September 1995.

Dzwonchyk,J. (2004) RE: Thesis, e-mail, 13 April 2004.

Galing,Steven. (2004) FW: Five Month CGSOC and CAS3, e-mail, 9 February 2004.

Harrington,D.D. (2004) FWD: (U) Tasker for CSA Prep Session, e-mail, 5 April 2004.

Hartley, Tina. (2003). "Leaders for the Transformed Army." Paper presented at The Pentagon, Washington,D.C. 12 November,2003.

_____. Interview (12 November 2003).

Hovda,Erik. Memo. (7 December 2003). "Statement of Work: The New Officer Education System's Impact on The Officer Transient, Holdee, and Student

Account."

_____. (2002) "A Simulation to Determine the Effect the Army Basic Officer Leadership Course will have on Accession Training." Master's Thesis, June 2002.

Jehle, Karle. (2003). "Trainees, Transients, Holdee, and Students' (TTHS) Account." Paper presented at The Pentagon, Washington D.C., 1 September 2003.

Kerbel, Judy. (6 April 2004). Telephone Interview.

Sickorez, R.D. (2003) "Allocating Air Force Career Field Accession Targets: An Optimization-based Tool." Master's Thesis. September 2003.

Ware, Chuck. (2003) "Attendance of Other Than Operations (OTO) Career Field Officers at the Advanced Warfighter Course (9AWOC). Paper presented at The Pentagon, 11 November, 2003.

Winston, Wayne L. (1994). Operations Research. Belmont, CA: Duxbury Press. 1205.

APPENDIX A. COURSE INFORMATION

This Appendix contains the general course lengths for the all OBC, BOLC II, BOLC III, CCC, and major's qualification.

OBC and BOLC II/III	Current OBC (Weeks)	New BOLC II (Weeks)	New BOLC III (Weeks)
AVIATION	7	7	7
CHEMICAL	19	7	13
ENGINEER	17	7	9
FIELD ARTILLERY	20	7	14
INFANTRY	16	7	10
ORDNANCE	19	7	13
QUARTERMASTER	15	7	10
SIGNAL	20	7	14
ARMOR (M1A1)	18	7	12
ARMOR (M1A2)	18	7	13
MILITARY POLICE	15	7	9
MILITARY INTELLIGENCE	18	7	12
ADA OFFICER BASIC	10	7	7
TRANSPORTATION	18	7	11
FINANCE	16	7	10
ADJUTANT GENERAL	14	7	8

Table 12. OBC AND BOLC COURSE LENGTHS

CAPTAIN'S CAREER COURSE	Current CCC (Weeks)	New CCC (Weeks)
AVIATION	18	20
CHEMICAL	18	20
ENGINEER	18	20
FIELD ARTILLERY	18	20
INFANTRY	18	20
SIGNAL	18	20
ARMOR	18	20
MILITARY POLICE	18	20
MILITARY INTELLIGENCE	18	20
AIR DEFENSE ARTILLERY	18	20
TRANSPORTATION	5	20
FINANCE	18	20
ADJUTANT GENERAL	18	20
COMBINED LOGISTICS PHASE 1	6	20
COMBINED LOGISTICS PHASE 2	5	
COMBINED LOGISTICS PHASE 3	7	

Table 13. CURRENT CCC AND PROPOSED CCC COURSE LENGTHS

Majors Qualification Courses	Course Lengtth (Weeks)	Sudents Per Course
Information Systems Engineering	20	12
Information Systems Engineering	10	20
Information Operations	10	30
Strategic Intelligence	31	20
Strategic Intelligence	41	20
Space Operations	7	12
Public Affairs	3	5
Information Systems Management	30	22
Simulation Operations	10	30
Human Resource Management	2	85
Comptroller	4	9
Comptroller	56	13
Operations Research ans Systems Analysis	10	60
Force Management	12	10
Nuclear Research and Operations	4	6
Strategic Plans and Policy	11	15
Foreign Area Officer	48	75
	78	75
	52	75
Research Development and Acquistion	17	75

Table 14. MAJOR'S QUALIFICATION COURSE INFORMATION

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APPENDIX B. TRANSIENT DATA

This Appendix contains the transient data, before and after a course, for each month for each rank.

2LT Transient Time Before Schooling

	Minimum Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	98.5%	94.2%	89.8%	97.1%	99.3%	98.8%	95.5%	98.4%	97.4%	94.8%	82.0%	99.7%
1	0.4%	0.4%	1.0%	0.7%	0.0%	0.1%	1.0%	0.0%	0.2%	0.4%	0.0%	0.0%
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Most Likely Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	97.4%	97.4%	96.6%	97.8%	95.1%	98.8%	98.6%	97.0%	98.2%	97.2%	94.4%	93.6%
1	1.8%	2.4%	2.1%	1.2%	2.2%	1.2%	1.2%	1.9%	0.7%	2.1%	4.1%	1.3%
2	0.6%	0.0%	1.0%	0.6%	1.5%	0.0%	0.2%	0.8%	0.5%	0.8%	0.9%	3.2%
3	0.1%	0.3%	0.3%	0.3%	0.7%	0.0%	0.0%	0.3%	0.4%	0.0%	0.3%	0.0%
4	0.1%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.2%	0.0%	0.3%	1.9%

	Maximum Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	99.5%	99.2%	98.9%	99.3%	99.9%	99.9%	99.0%	100.0%	99.5%	99.6%	100.0%	100.0%
1	1.3%	5.3%	3.8%	2.1%	0.5%	1.2%	4.5%	1.6%	2.2%	5.2%	18.0%	0.1%
2	0.1%	0.4%	1.9%	0.1%	0.1%	0.1%	0.4%	0.1%	0.4%	0.1%	0.1%	0.3%
3	0.1%	0.1%	1.0%	1.0%	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%
4	0.2%	0.4%	0.1%	1.0%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%

2LT Transient Time After Schooling

	Minimum Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	95.0%	95.0%	96.0%	95.1%	94.1%	92.9%	89.0%	90.6%	92.8%	94.1%	92.9%	98.5%
1	2.0%	1.9%	1.0%	3.4%	2.3%	0.6%	0.4%	4.4%	1.1%	2.5%	2.5%	1.1%
2	0.0%	0.0%	0.3%	0.3%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Most Likely Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	96.6%	96.6%	97.7%	95.3%	95.6%	95.1%	95.4%	92.9%	96.4%	96.0%	96.1%	98.7%
1	3.1%	3.1%	1.6%	3.7%	3.7%	3.6%	4.0%	6.2%	2.8%	3.7%	3.7%	1.1%
2	0.2%	0.1%	0.4%	0.6%	0.3%	0.9%	0.2%	0.2%	0.4%	0.2%	0.1%	0.1%
3	0.0%	0.1%	0.2%	0.4%	0.3%	0.3%	0.3%	0.2%	0.2%	0.0%	0.1%	0.0%
4	0.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.5%	0.2%	0.0%	0.1%	0.1%

	Maximum Months											
Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	98.0%	97.6%	98.7%	95.5%	97.4%	98.2%	99.0%	94.7%	98.3%	97.1%	97.4%	98.9%
1	5.0%	5.0%	2.3%	4.0%	4.8%	6.8%	9.2%	9.2%	5.7%	5.7%	6.6%	2.0%
2	0.6%	0.2%	0.6%	0.9%	0.5%	1.9%	0.9%	0.8%	0.7%	0.3%	0.2%	0.2%
3	0.1%	0.2%	0.9%	0.5%	0.3%	1.0%	0.9%	0.4%	0.4%	0.2%	0.2%	0.1%
4	0.3%	0.6%	0.3%	0.3%	0.3%	0.3%	0.4%	0.8%	0.4%	0.2%	0.2%	0.2%

Table 15. TRANSIENT PERCENTAGES FOR LIEUTENANTS

CPT Transient Time Before Schooling

Minimum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	87.7%	96.2%	92.1%	95.3%	94.8%	96.6%	94.6%	95.2%	92.4%	94.9%	89.5%	98.0%
1	4.6%	0.8%	0.7%	0.8%	1.4%	0.0%	1.3%	1.8%	1.3%	0.3%	1.8%	0.0%
2	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.6%	0.3%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.5%	0.0%

Most Likely Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	91.9%	97.2%	96.3%	97.4%	96.7%	98.3%	96.2%	96.4%	94.4%	96.2%	94.9%	99.1%
1	7.1%	1.9%	3.0%	2.2%	2.0%	1.4%	3.1%	2.4%	3.9%	1.6%	3.7%	0.2%
2	0.5%	0.7%	0.4%	0.1%	0.8%	0.1%	0.5%	0.8%	1.2%	1.5%	0.5%	0.5%
3	0.3%	0.0%	0.2%	0.1%	0.4%	0.1%	0.1%	0.1%	0.3%	0.4%	0.1%	0.1%
4	0.3%	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%	0.3%	0.2%	0.2%	0.7%	0.1%

Maximum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	94.8%	98.5%	98.2%	99.2%	97.9%	99.5%	97.2%	97.2%	97.4%	97.7%	97.7%	99.6%
1	11.8%	2.9%	7.0%	4.3%	2.5%	2.9%	5.1%	3.3%	5.9%	3.4%	7.3%	0.5%
2	0.7%	1.4%	0.9%	0.3%	1.6%	0.3%	0.9%	1.1%	2.3%	3.6%	1.6%	1.5%
3	0.4%	0.1%	0.4%	0.2%	1.1%	0.2%	0.2%	0.2%	0.6%	1.0%	0.5%	0.4%
4	0.6%	0.5%	0.4%	0.2%	0.3%	0.2%	0.6%	0.3%	0.7%	0.7%	1.1%	0.4%

CPT Transient Time After Schooling

Minimum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	89.6%	86.5%	81.3%	79.3%	79.3%	81.9%	80.8%	90.7%	86.5%	85.1%	71.6%	89.4%
1	2.9%	5.6%	4.1%	4.6%	11.4%	6.1%	3.4%	1.2%	1.7%	5.5%	14.9%	2.7%
2	0.0%	0.9%	0.7%	1.9%	2.7%	1.1%	1.9%	0.3%	0.4%	2.2%	1.3%	1.6%
3	0.0%	0.2%	0.0%	0.5%	0.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
4	0.0%	0.0%	0.0%	0.0%	0.4%	0.5%	0.3%	0.0%	0.0%	0.3%	0.0%	0.3%

Most Likely Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	93.9%	90.3%	87.4%	84.6%	81.3%	86.8%	85.0%	94.4%	90.7%	87.1%	78.0%	92.3%
1	4.5%	7.5%	10.5%	10.4%	13.3%	9.0%	11.0%	4.1%	7.1%	8.2%	19.3%	5.0%
2	1.2%	1.3%	1.5%	3.5%	3.5%	2.0%	2.8%	1.0%	1.2%	3.7%	1.8%	1.9%
3	0.3%	0.7%	0.4%	1.0%	1.0%	1.4%	0.6%	0.3%	0.8%	0.5%	0.7%	0.5%
4	0.1%	0.2%	0.2%	0.4%	1.0%	0.9%	0.7%	0.1%	0.2%	0.5%	0.2%	0.3%

Maximum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	7.0%	10.8%	16.8%	13.2%	15.7%	12.7%	15.7%	5.8%	10.7%	10.1%	27.0%	7.5%
1	2.3%	1.7%	2.5%	6.3%	4.0%	2.8%	4.2%	2.8%	1.8%	4.8%	2.5%	2.4%
2	1.0%	1.5%	1.3%	1.5%	1.0%	3.4%	1.3%	0.5%	1.4%	1.3%	1.4%	0.8%
3	0.3%	0.6%	0.4%	0.8%	1.5%	1.4%	0.8%	0.3%	0.4%	0.8%	0.4%	0.3%
4	0.3%	0.6%	0.3%	0.3%	0.3%	0.3%	0.4%	0.8%	0.4%	0.2%	0.2%	0.2%

Table 16. TRANSIENT PERCENTAGES FOR CAPTAINS

MAJ Transient Time Before Schooling

Minimum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	96.7%	86.4%	90.0%	86.4%	95.6%	99.1%	96.9%	89.9%	86.0%	75.0%	100.0%	93.3%
1	0.0%	0.0%	0.0%	3.7%	1.1%	0.0%	1.2%	2.1%	0.0%	0.0%	0.0%	0.0%
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%
3	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Most Likely Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	98.5%	95.9%	94.2%	91.7%	97.2%	99.5%	97.3%	93.4%	91.1%	94.7%	100.0%	98.6%
1	0.0%	2.0%	4.7%	4.2%	1.4%	0.3%	2.1%	2.9%	1.8%	0.9%	0.0%	0.0%
2	1.5%	1.4%	1.2%	1.4%	0.9%	0.0%	0.2%	2.9%	3.6%	0.9%	0.0%	1.4%
3	0.0%	0.7%	0.0%	2.8%	0.5%	0.1%	0.1%	0.4%	2.4%	1.8%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.4%	1.2%	1.8%	0.0%	0.0%

Maximum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	100.0%	100.0%	100.0%	95.7%	98.9%	100.0%	97.5%	97.4%	94.4%	100.0%	100.0%	100.0%
1	0.1%	4.5%	10.0%	4.5%	2.0%	0.6%	2.5%	3.4%	3.3%	4.2%	0.1%	0.1%
2	3.3%	4.5%	4.2%	4.5%	2.0%	0.1%	0.5%	5.6%	5.0%	2.2%	0.1%	6.7%
3	0.1%	4.5%	0.1%	4.5%	1.5%	0.2%	0.2%	1.1%	4.7%	16.7%	0.1%	0.1%
4	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.7%	1.1%	3.3%	8.3%	0.1%	0.1%

MAJ Transient Time After Schooling

Minimum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	83.3%	72.2%	76.5%	42.6%	64.6%	85.9%	75.5%	81.3%	90.9%	91.4%	67.6%	80.5%
1	0.0%	3.3%	0.0%	18.1%	18.8%	1.6%	7.9%	2.7%	0.0%	0.0%	3.3%	7.9%
2	0.0%	0.0%	0.0%	4.0%	2.0%	2.0%	1.0%	1.7%	0.0%	0.0%	2.7%	2.4%
3	0.0%	0.0%	2.7%	1.6%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	0.0%	0.0%	0.0%	0.6%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Most Likely Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	91.1%	82.8%	90.5%	58.0%	71.0%	90.4%	80.9%	89.7%	94.4%	93.6%	74.1%	83.7%
1	6.9%	11.1%	2.9%	31.2%	22.0%	5.6%	12.1%	7.4%	1.4%	4.0%	19.3%	9.9%
2	2.0%	4.0%	0.7%	7.5%	3.3%	3.0%	4.9%	2.2%	0.0%	0.8%	4.4%	3.5%
3	0.0%	0.0%	5.1%	2.2%	2.1%	0.5%	1.3%	0.0%	3.5%	1.6%	0.0%	2.1%
4	0.0%	2.0%	0.7%	1.1%	1.7%	0.5%	0.8%	0.7%	0.7%	0.0%	2.2%	0.7%

Maximum Months

Transient Months	1	2	3	4	5	6	7	8	9	10	11	12
0	96.9%	90.0%	95.8%	75.4%	75.7%	94.6%	90.1%	94.7%	100.0%	95.0%	93.3%	90.0%
1	16.7%	22.2%	5.9%	43.5%	24.1%	9.2%	16.7%	14.6%	2.8%	5.7%	29.7%	14.6%
2	3.1%	6.7%	5.9%	10.6%	6.1%	4.2%	8.3%	2.7%	0.1%	2.9%	7.9%	4.8%
3	0.1%	0.1%	11.8%	2.7%	2.5%	1.1%	2.5%	0.1%	6.8%	5.9%	0.1%	3.2%
4	0.1%	5.6%	2.7%	2.1%	2.7%	2.0%	2.1%	2.1%	4.0%	0.1%	5.3%	2.4%

Table 17. TRANSIENT PERCENTAGES FOR MAJORS

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APPENDIX C. SIMULATED OFFICER ACCESSIONS

This Appendix has the simulated officer accessions for each month of the next six years and the historical proportions of officers each branch accessed onto active duty.

	Year 1											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	5	6	4	25	11	8	6	57	51	12	9	22
AG	3	2	3	12	6	4	3	31	23	5	10	9
AR	6	9	17	31	9	4	4	109	93	9	15	19
AV	2	7	5	25	9	4	6	134	76	8	12	13
CM	6	3	0	16	5	6	4	21	18	10	7	17
EN	19	8	17	31	22	3	11	149	121	12	28	18
FA	11	16	40	44	38	9	13	149	110	19	22	14
FI	1	2	0	4	3	0	0	22	12	5	7	4
IN	18	14	27	57	34	10	22	200	179	19	45	20
MI	13	15	6	49	23	8	16	116	69	21	22	16
MP	10	5	6	18	11	5	9	53	24	4	4	13
OD	11	9	12	28	17	10	13	66	47	14	21	16
QM	9	20	9	38	16	13	11	95	39	15	21	16
SC	14	13	6	63	18	6	32	121	50	17	30	24
TC	12	7	9	30	5	7	11	68	36	9	11	11

	Year 2											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	4	5	4	16	10	4	5	60	36	16	12	7
AG	3	5	5	8	5	5	3	54	37	5	9	15
AR	6	5	16	26	17	4	11	65	63	11	12	18
AV	6	4	6	21	7	3	6	87	51	6	9	18
CM	10	3	1	13	4	5	3	26	20	14	8	12
EN	10	4	34	30	41	3	12	149	132	18	12	22
FA	9	12	23	58	39	9	8	176	87	13	30	28
FI	3	0	3	6	3	0	0	22	14	1	8	2
IN	26	15	23	39	28	8	24	186	63	39	15	40
MI	20	15	33	56	24	5	19	184	84	22	40	26
MP	12	4	3	17	3	4	9	47	29	6	11	11
OD	7	7	21	23	14	9	16	84	27	16	27	15
QM	10	8	9	25	15	6	9	73	35	26	18	15
SC	13	18	10	53	31	9	22	99	60	25	19	50
TC	7	3	20	29	10	3	9	71	34	16	18	8

	Year 3											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	8	6	3	21	10	7	8	55	55	5	14	11
AG	4	4	5	13	10	3	4	48	26	8	10	11
AR	8	12	13	24	15	4	8	141	60	14	24	11
AV	3	7	5	30	5	3	6	100	90	8	13	13
CM	14	4	1	12	8	5	5	27	18	11	5	11
EN	13	4	22	42	13	5	4	91	77	11	17	20
FA	17	14	29	39	25	7	9	140	89	9	30	25
FI	1	1	0	6	4	1	1	24	13	2	4	2
IN	23	15	18	39	31	10	22	217	103	28	37	35
MI	17	16	33	48	16	15	19	154	97	24	33	33
MP	8	7	4	18	6	5	5	57	34	9	10	9
OD	10	9	15	29	17	2	11	72	44	24	23	20
QM	7	10	16	47	11	15	7	83	37	10	16	13
SC	9	14	13	47	21	9	18	94	66	25	31	37
TC	12	4	14	25	7	6	8	62	32	15	23	10

	Year 4											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	1	6	2	13	10	4	7	44	48	4	6	17
AG	3	4	3	9	12	2	5	44	20	5	9	8
AR	10	13	19	29	12	7	12	132	65	5	18	15
AV	7	7	6	26	5	4	4	105	77	8	15	7
CM	9	3	7	12	7	7	5	23	18	13	9	4
EN	15	3	25	39	45	6	8	112	88	17	21	19
FA	11	11	36	53	34	2	10	130	100	20	32	26
FI	2	1	6	6	3	0	1	29	9	4	4	4
IN	8	15	30	41	20	15	19	177	100	31	37	25
MI	14	27	30	64	33	8	16	149	81	24	37	23
MP	8	7	4	17	6	2	3	50	26	6	7	7
OD	8	11	17	31	14	5	6	76	24	17	20	16
QM	11	9	22	32	7	8	3	79	31	13	16	22
SC	4	19	12	60	22	15	17	120	71	28	47	26
TC	8	5	15	33	4	9	12	70	26	12	18	14

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	3	5	3	19	12	6	5	53	28	8	10	13
AG	4	3	7	15	5	4	1	58	44	4	14	8
AR	11	7	15	29	26	4	10	95	52	14	20	13
AV	4	6	8	18	8	3	5	124	59	11	14	7
CM	11	3	4	13	6	7	3	21	19	7	7	8
EN	8	4	27	42	35	8	9	108	74	20	15	22
FA	26	11	40	64	30	1	9	222	133	18	29	21
FI	2	1	2	7	5	0	1	25	11	2	8	2
IN	15	15	40	56	21	15	27	183	50	41	28	36
MI	18	15	23	57	21	10	17	159	95	24	33	38
MP	9	4	3	14	5	3	7	40	35	5	8	12
OD	11	5	13	17	14	3	12	86	37	20	19	20
QM	9	8	14	32	11	9	9	69	49	19	16	19
SC	19	14	15	47	21	11	18	99	53	18	38	30
TC	12	4	12	26	7	8	9	67	29	10	23	4

	Year 6											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
AD	8	12	2	12	7	8	4	64	51	7	13	13
AG	3	3	3	6	9	2	4	58	39	8	15	6
AR	10	11	12	40	9	5	8	139	107	12	23	22
AV	8	7	7	34	9	3	4	78	84	11	17	13
CM	7	3	3	16	7	7	5	24	15	9	8	7
EN	13	9	22	42	40	10	8	100	51	14	14	23
FA	18	14	17	59	24	3	8	168	92	15	36	13
FI	2	2	5	10	3	0	1	27	13	2	5	1
IN	24	15	26	79	31	13	23	245	201	26	25	32
MI	20	21	23	53	28	15	20	151	92	24	32	37
MP	9	2	5	16	6	4	6	41	31	7	11	7
OD	7	15	23	29	21	7	16	86	31	16	21	17
QM	10	12	8	38	13	6	7	81	41	13	22	20
SC	11	15	11	55	13	16	25	89	62	12	32	38
TC	10	4	11	31	12	3	12	72	39	13	21	11

Table 18. SIMULATED OFFICER ACCESSIONS BY YEAR

Minimum	1	2	3	4	5	6	7	8	9	10	11	12
AD	5.33%	3.16%	1.17%	1.23%	18.97%	8.19%	1.19%	3.51%	1.98%	0.00%	0.00%	0.41%
AG	3.28%	1.14%	1.10%	0.00%	19.50%	6.86%	0.82%	2.08%	0.63%	0.57%	1.14%	1.56%
AR	4.31%	1.58%	0.92%	0.95%	16.62%	8.63%	0.95%	1.58%	2.55%	0.60%	0.89%	2.63%
AV	4.24%	1.02%	0.95%	0.34%	20.95%	6.62%	1.58%	2.04%	1.35%	0.00%	0.32%	0.68%
CH	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CM	5.26%	3.01%	0.00%	0.75%	17.76%	12.03%	3.01%	3.10%	2.76%	1.45%	1.55%	0.00%
EN	6.72%	1.58%	0.54%	0.57%	17.86%	5.24%	3.02%	2.58%	2.75%	0.95%	0.48%	0.90%
FA	3.45%	1.76%	0.00%	0.82%	15.50%	7.28%	0.85%	4.41%	1.45%	0.21%	1.64%	1.94%
FI	4.11%	1.72%	0.00%	0.00%	21.92%	9.89%	0.00%	1.27%	1.27%	1.10%	0.00%	0.00%
IN	3.61%	2.66%	0.75%	2.28%	17.02%	5.19%	2.26%	2.42%	0.98%	1.16%	2.08%	3.01%
MI	6.96%	2.42%	0.65%	2.83%	25.87%	10.88%	2.17%	3.80%	1.95%	1.88%	2.17%	1.34%
MP	3.97%	1.18%	0.66%	0.00%	24.71%	9.59%	0.66%	1.43%	3.53%	3.18%	0.00%	1.37%
OD	4.18%	3.00%	0.33%	2.31%	22.14%	8.01%	4.06%	4.95%	4.05%	1.60%	1.85%	1.00%
QM	6.90%	2.48%	1.88%	1.25%	22.71%	9.12%	1.64%	4.38%	3.93%	2.20%	1.60%	1.24%
SC	7.50%	2.30%	0.44%	3.06%	19.04%	9.03%	1.25%	3.72%	4.15%	0.88%	1.97%	1.02%
TC	7.69%	1.15%	0.37%	2.19%	25.00%	10.08%	3.35%	4.03%	1.75%	1.89%	0.00%	1.51%

Most Likely	1	2	3	4	5	6	7	8	9	10	11	12
AD	11.65%	6.05%	3.44%	3.55%	28.46%	21.50%	4.53%	6.41%	6.79%	2.08%	2.92%	2.62%
AG	9.83%	6.46%	2.38%	3.31%	34.04%	18.15%	4.70%	7.74%	4.82%	2.16%	3.05%	3.37%
AR	8.86%	4.17%	1.72%	3.65%	34.92%	20.50%	3.60%	5.33%	5.50%	3.53%	3.16%	5.07%
AV	9.28%	2.69%	1.42%	2.56%	42.34%	22.96%	2.75%	5.31%	4.09%	2.23%	2.21%	2.16%
CH	45.81%	1.47%	0.00%	0.00%	10.87%	21.11%	3.93%	2.75%	4.75%	0.51%	4.45%	4.35%
CM	10.96%	5.89%	2.12%	4.56%	22.42%	15.50%	9.57%	7.17%	7.39%	6.98%	3.09%	4.34%
EN	10.14%	6.04%	1.93%	2.66%	35.58%	18.87%	4.75%	4.63%	5.81%	3.83%	1.56%	4.20%
FA	9.72%	6.96%	1.62%	2.57%	33.55%	19.60%	4.17%	6.54%	4.42%	3.11%	2.66%	5.07%
FI	11.20%	5.74%	1.08%	1.82%	33.10%	19.96%	4.25%	7.82%	4.56%	2.91%	3.19%	4.38%
IN	9.24%	4.62%	1.84%	3.77%	34.85%	19.39%	4.86%	5.82%	5.08%	3.21%	2.77%	4.56%
MI	11.13%	5.29%	2.42%	3.51%	32.62%	17.15%	4.51%	6.52%	6.57%	3.18%	3.85%	3.27%
MP	11.00%	5.33%	2.04%	3.78%	29.24%	20.06%	4.24%	5.82%	7.02%	5.79%	2.87%	2.79%
OD	11.31%	5.93%	2.10%	4.48%	29.70%	12.72%	6.40%	8.35%	6.53%	4.22%	3.85%	4.40%
QM	14.24%	4.72%	2.93%	4.03%	27.57%	15.12%	6.15%	6.98%	7.27%	3.64%	3.60%	3.75%
SC	11.61%	5.03%	2.38%	4.81%	25.89%	17.83%	5.99%	8.94%	7.92%	3.34%	3.31%	2.95%
TC	12.45%	4.02%	2.65%	3.93%	32.48%	14.66%	5.42%	8.28%	4.68%	4.75%	2.33%	4.36%

Maximum	1	2	3	4	5	6	7	8	9	10	11	12
AD	22.54%	8.77%	5.16%	6.22%	39.77%	34.78%	9.94%	8.89%	16.80%	6.57%	7.91%	3.56%
AG	13.84%	10.94%	4.40%	6.25%	52.00%	31.15%	8.84%	11.48%	10.94%	3.61%	4.40%	5.74%
AR	14.24%	9.52%	2.53%	5.00%	47.37%	41.23%	7.63%	9.25%	8.00%	5.26%	6.52%	8.92%
AV	13.92%	4.30%	2.03%	3.80%	53.97%	46.62%	4.76%	8.54%	7.14%	3.82%	4.41%	4.59%
CM	20.93%	7.97%	8.41%	7.48%	26.21%	20.29%	15.86%	12.78%	17.29%	13.18%	4.35%	7.75%
EN	13.47%	16.43%	3.37%	4.09%	46.40%	41.48%	6.31%	8.79%	8.89%	7.45%	3.38%	12.37%
FA	16.84%	14.56%	3.10%	3.51%	50.77%	38.43%	5.47%	8.47%	7.75%	6.45%	3.51%	10.22%
FI	17.24%	10.13%	2.53%	3.30%	48.10%	30.88%	9.89%	20.55%	9.84%	6.56%	8.20%	12.33%
IN	15.66%	9.17%	3.01%	5.10%	48.96%	41.27%	7.09%	9.82%	8.82%	7.67%	3.19%	7.98%
MI	15.40%	7.47%	3.75%	4.69%	38.43%	23.70%	6.57%	10.00%	8.78%	5.15%	5.92%	8.70%
MP	15.71%	8.92%	4.46%	7.28%	38.22%	34.44%	8.22%	10.27%	9.93%	9.29%	5.48%	5.96%
OD	15.13%	9.24%	5.67%	7.75%	36.86%	20.66%	11.88%	12.55%	8.71%	5.67%	6.93%	13.24%
QM	19.34%	6.90%	6.19%	6.37%	35.22%	21.94%	10.53%	11.47%	11.16%	6.19%	7.54%	10.03%
SP	44.59%	31.40%	4.39%	0.88%	24.14%	6.76%	18.60%	12.07%	39.47%	15.79%	6.14%	1.35%
TC	15.24%	8.06%	7.26%	6.04%	40.00%	20.07%	8.33%	11.54%	8.08%	7.02%	6.32%	10.77%

Table 19. MONTHLY OAS PERCENTAGES BY BRANCH

APPENDIX D. SIMULATION OUTPUT

This appendix contains the monthly output for all variations of the simulation run for majors, captains and lieutenants.

	CURRENT CGSC		CGSC WITH CAPACITY INCREASES	
	MEAN	SD	MEAN	SD
Oct-05	728.77	1.77	1051.52	2.42
Nov-05	731.95	0.86	731.96	0.86
Dec-05	731.95	0.86	731.96	0.86
Jan-06	731.95	0.86	731.96	0.86
Feb-06	731.95	0.86	731.96	0.86
Mar-06	731.95	0.86	731.96	0.86
Apr-06	731.95	0.86	731.96	0.86
May-06	340.39	50.80	341.72	50.92
Jun-06	77.12	17.57	80.14	18.38
Jul-06	22.32	8.10	25.33	8.99
Aug-06	753.38	8.13	1454.34	9.05
Sep-06	728.77	1.82	1424.21	3.19
Oct-06	728.77	1.82	1424.21	3.19
Nov-06	732.00	0.85	1429.98	0.87
Dec-06	732.00	0.85	1429.98	0.87
Jan-07	732.00	0.85	1429.98	0.87
Feb-07	732.00	0.85	1429.98	0.87
Mar-07	732.00	0.85	1429.98	0.87
Apr-07	732.00	0.85	1429.98	0.87
May-07	361.95	51.51	372.82	52.35
Jun-07	98.68	19.33	111.24	21.32
Jul-07	43.86	11.13	56.42	14.29
Aug-07	774.78	11.16	1485.41	14.33
Sep-07	728.72	1.76	1424.17	3.12
Oct-07	728.72	1.76	1424.17	3.12
Nov-07	731.95	0.84	1429.98	0.89
Dec-07	731.95	0.84	1429.98	0.89
Jan-08	731.95	0.84	1429.98	0.89
Feb-08	731.95	0.84	1429.98	0.89
Mar-08	731.95	0.84	1429.98	0.89
Apr-08	731.95	0.84	1429.98	0.89
May-08	381.81	51.72	401.81	52.38
Jun-08	118.54	19.60	140.23	21.58
Jul-08	63.72	11.48	85.42	14.64
Aug-08	794.64	11.57	1514.42	14.68
Sep-08	728.67	1.76	1424.15	3.26
Oct-08	728.67	1.76	1424.15	3.26
Nov-08	1429.97	0.86	1429.94	0.86
Dec-08	1429.97	0.86	1429.94	0.86
Jan-09	1429.97	0.86	1429.94	0.86
Feb-09	1429.97	0.86	1429.94	0.86
Mar-09	1429.97	0.86	1429.94	0.86
Apr-09	1429.97	0.86	1429.94	0.86
May-09	381.81	51.72	401.81	52.38
Jun-09	118.54	19.60	140.23	21.58
Jul-09	63.72	11.48	85.42	14.64
Aug-09	1492.69	11.49	1514.42	14.66
Sep-09	1424.03	3.12	1424.17	3.17

Table 20. CURRENT CGSC AND PLANNED INCREASES

	15% PCS or TDY Enroute		30% PCS or TDY Enroute		50% PCS or TDY Enroute		100% PCS or TDY Enroute	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
Oct-05	1061.10	2.46	1071.31	2.52	1085.37	2.60	1122.65	3.25
Nov-05	739.80	0.95	749.41	1.13	762.73	1.18	796.72	2.02
Dec-05	732.01	0.88	731.98	0.85	731.96	0.85	732.30	1.00
Jan-06	738.01	0.88	744.98	0.85	754.18	0.95	777.40	1.20
Feb-06	744.01	0.88	757.98	0.85	776.96	0.85	824.22	0.98
Mar-06	748.01	0.88	766.50	1.03	791.16	0.94	854.08	1.21
Apr-06	748.83	0.96	769.78	1.21	796.96	1.24	867.18	2.24
May-06	350.17	49.47	362.43	52.35	371.47	50.41	410.52	50.52
Jun-06	87.43	17.75	95.45	17.63	106.91	18.04	140.04	18.43
Jul-06	42.75	8.73	63.12	8.56	91.60	8.85	167.02	9.80
Aug-06	1467.28	8.68	1483.23	8.55	1505.07	8.66	1562.70	9.24
Sep-06	1428.20	3.20	1434.32	3.22	1442.69	3.29	1467.08	4.08
Oct-06	1433.60	3.23	1443.77	3.20	1458.06	3.30	1495.76	3.85
Nov-06	1437.75	0.96	1447.32	1.14	1460.74	1.25	1495.10	2.09
Dec-06	1429.97	0.87	1429.91	0.84	1429.97	0.86	1430.92	1.23
Jan-07	1435.97	0.87	1442.91	0.84	1452.31	1.00	1476.10	1.34
Feb-07	1441.97	0.87	1455.91	0.84	1474.99	0.87	1523.34	1.46
Mar-07	1445.97	0.87	1464.42	1.04	1489.24	0.96	1552.02	1.19
Apr-07	1446.78	0.95	1467.71	1.23	1495.04	1.28	1565.55	2.27
May-07	381.60	50.26	393.65	53.53	402.16	51.89	442.01	51.33
Jun-07	118.87	21.16	126.65	21.38	137.59	21.11	170.99	21.21
Jul-07	74.20	14.41	94.27	14.55	122.25	13.92	198.64	14.85
Aug-07	1498.76	14.38	1514.40	14.56	1535.67	13.80	1593.69	14.43
Sep-07	1428.17	3.15	1434.50	3.32	1442.73	3.22	1467.27	3.97
Oct-07	1433.60	3.18	1443.92	3.26	1458.03	3.27	1495.76	3.83
Nov-07	1437.75	0.95	1447.37	1.17	1460.77	1.29	1495.69	2.12
Dec-07	1429.94	0.87	1429.98	0.89	1430.77	1.10	1433.85	1.80
Jan-08	1435.94	0.87	1442.95	0.87	1453.35	1.03	1479.36	1.68
Feb-08	1441.94	0.87	1455.98	0.89	1476.09	1.22	1526.23	1.72
Mar-08	1445.94	0.87	1464.45	1.05	1489.72	0.97	1554.56	2.00
Apr-08	1446.73	0.98	1467.74	1.24	1495.55	1.59	1566.51	2.23
May-08	410.63	50.24	422.65	53.66	431.18	51.79	471.61	51.41
Jun-08	147.91	21.28	155.65	21.66	166.61	21.17	201.19	21.48
Jul-08	103.23	14.71	123.32	14.96	151.38	14.16	228.29	15.16
Aug-08	1527.79	14.69	1543.48	14.93	1564.75	13.96	1624.20	14.77
Sep-08	1428.34	3.14	1434.44	3.21	1442.81	3.26	1467.59	4.13
Oct-08	1433.75	3.20	1443.83	3.21	1458.11	3.29	1495.53	3.75
Nov-08	1437.71	0.95	1447.36	1.19	1460.77	1.27	1495.72	2.09
Dec-08	1429.93	0.87	1429.99	0.87	1430.78	1.12	1433.86	1.80
Jan-09	1435.93	0.87	1442.96	0.85	1453.35	1.03	1479.36	1.69
Feb-09	1441.93	0.87	1455.99	0.87	1476.09	1.24	1526.23	1.70
Mar-09	1445.93	0.87	1464.47	1.07	1489.72	0.96	1554.56	1.96
Apr-09	1446.74	0.96	1467.76	1.25	1495.56	1.58	1566.55	2.27
May-09	410.66	50.26	422.64	53.64	431.19	51.80	471.65	51.39
Jun-09	147.91	21.28	155.65	21.66	166.61	21.17	201.19	21.48
Jul-09	103.22	14.70	123.34	14.95	151.37	14.19	228.26	15.18
Aug-09	1527.77	14.67	1543.45	14.88	1564.72	14.07	1624.23	14.78
Sep-09	1428.25	3.19	1434.52	3.35	1442.67	3.27	1467.67	4.03

Table 21. MAJOR'S ILE SIMULATION RESULTS

	15% PCS or TDY Enroute		30% PCS or TDY Enroute		50% PCS or TDY Enroute		100% PCS or TDY Enroute	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
Oct-05	1091.61	2.80	1119.56	3.29	1159.67	3.85	1260.16	6.18
Nov-05	786.37	1.91	806.45	2.26	834.56	2.92	904.50	4.89
Dec-05	774.59	1.86	785.04	2.15	799.81	2.79	836.08	4.55
Jan-06	784.19	2.04	797.93	2.25	816.72	2.50	863.12	3.41
Feb-06	808.07	2.26	828.79	2.54	857.40	2.66	927.79	3.50
Mar-06	811.12	2.24	836.37	2.57	871.18	2.50	958.34	3.19
Apr-06	803.90	2.28	828.60	2.66	861.36	2.66	944.61	3.48
May-06	426.80	51.27	445.05	50.65	465.70	50.34	519.61	49.46
Jun-06	182.55	18.60	203.08	18.20	232.15	18.06	305.84	18.58
Jul-06	144.20	9.31	180.61	9.29	230.53	9.67	358.17	10.93
Aug-06	1532.42	9.14	1561.55	9.09	1600.57	9.29	1700.72	10.20
Sep-06	1487.52	3.88	1502.13	4.03	1523.21	4.15	1577.31	5.45
Oct-06	1495.73	3.93	1523.22	4.31	1563.84	4.64	1664.57	6.79
Nov-06	1513.66	2.56	1533.71	3.04	1561.95	3.45	1632.69	5.23
Dec-06	1485.02	2.32	1495.50	2.70	1510.32	3.22	1547.63	4.85
Jan-07	1482.18	2.10	1496.01	2.22	1514.82	2.54	1561.83	3.62
Feb-07	1506.00	2.34	1526.85	2.45	1555.32	2.64	1626.88	3.73
Mar-07	1509.05	2.32	1534.44	2.40	1569.12	2.62	1656.38	3.20
Apr-07	1501.83	2.35	1526.69	2.49	1559.27	2.67	1643.10	3.54
May-07	457.95	52.38	475.89	52.14	496.58	51.32	551.60	50.97
Jun-07	213.67	21.16	233.88	22.09	262.98	21.36	337.32	22.04
Jul-07	175.22	14.30	211.42	14.76	261.29	15.00	390.36	15.56
Aug-07	1563.40	14.31	1592.33	14.58	1631.36	14.70	1732.05	14.91
Sep-07	1487.36	3.98	1502.31	3.99	1523.01	4.14	1577.46	5.34
Oct-07	1495.63	4.08	1523.42	4.24	1563.59	4.84	1664.46	7.06
Nov-07	1513.62	2.63	1533.71	2.93	1561.98	3.48	1633.14	5.34
Dec-07	1484.98	2.35	1495.51	2.68	1511.13	3.22	1550.54	5.22
Jan-08	1482.07	1.99	1496.02	2.26	1515.85	2.58	1565.09	3.77
Feb-08	1505.83	2.26	1526.89	2.52	1556.44	2.84	1629.93	3.89
Mar-08	1508.87	2.24	1534.47	2.56	1569.84	2.54	1658.86	3.69
Apr-08	1501.67	2.28	1526.71	2.65	1560.05	2.80	1644.15	3.61
May-08	486.86	52.50	505.01	52.41	525.52	51.31	581.03	51.12
Jun-08	242.58	21.44	262.99	22.44	291.91	21.53	367.34	22.08
Jul-08	204.18	14.79	240.52	15.26	290.28	15.28	419.73	15.67
Aug-08	1592.58	14.84	1621.36	15.09	1660.26	15.07	1762.26	15.05
Sep-08	1487.57	3.89	1502.39	4.14	1523.28	4.18	1577.99	5.40
Oct-08	1495.82	3.99	1523.52	4.39	1563.81	4.70	1664.55	6.98
Nov-08	1513.63	2.59	1533.78	2.90	1561.91	3.35	1633.23	5.45
Dec-08	1485.01	2.34	1495.56	2.62	1511.05	3.19	1550.55	5.18
Jan-09	1482.16	2.09	1495.94	2.24	1515.74	2.54	1564.92	3.58
Feb-09	1505.97	2.37	1526.86	2.40	1556.21	2.81	1629.80	3.81
Mar-09	1509.04	2.36	1534.45	2.44	1569.56	2.61	1658.88	3.67
Apr-09	1501.86	2.38	1526.70	2.53	1559.76	2.76	1644.06	3.68
May-09	486.90	52.61	504.92	52.32	525.40	51.25	580.99	50.98
Jun-09	242.58	21.41	262.99	22.33	291.72	21.47	367.42	22.00
Jul-09	204.29	14.66	240.52	15.09	290.00	15.37	420.07	16.11
Aug-09	1592.59	14.58	1621.37	14.95	1660.11	15.23	1762.58	15.52
Sep-09	1487.32	3.89	1502.30	4.06	1523.10	4.15	1577.85	5.54

Table 22. MAJOR'S QUALIFICATION SIMULATION RESULTS

	15% PCS or TDY Enroute		30% PCS or TDY Enroute		50% PCS or TDY Enroute		100% PCS or TDY Enroute	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
Oct-05	158.00	0.00	316.26	0.44	527.69	0.53	1055.95	0.87
Nov-05	158.00	0.00	316.26	0.44	527.69	0.53	1055.95	0.87
Dec-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jan-06	229.45	2.68	462.47	5.30	773.23	8.25	1549.18	16.33
Feb-06	216.01	1.13	434.64	2.17	726.16	3.47	1454.46	6.93
Mar-06	212.53	0.55	427.29	1.34	713.53	2.14	1429.03	4.23
Apr-06	211.53	0.55	425.83	1.43	711.42	2.36	1425.42	4.58
May-06	0.12	0.34	1.18	0.83	2.71	1.26	6.39	2.42
Jun-06	0.00	0.05	0.40	0.59	1.73	1.21	5.39	2.42
Jul-06	0.12	0.32	0.49	0.50	1.06	0.92	4.41	2.38
Aug-06	158.01	0.11	316.85	1.02	528.57	1.06	1059.41	2.42
Sep-06	160.87	1.24	321.33	3.39	534.07	6.64	1060.44	6.46
Oct-06	159.99	1.09	320.72	2.20	535.47	3.68	1072.15	7.20
Nov-06	159.08	0.96	319.74	2.16	534.47	3.66	1071.16	7.19
Dec-06	0.63	0.66	2.63	1.95	5.85	3.51	14.26	7.06
Jan-07	230.31	2.85	464.46	5.52	778.21	8.95	1562.51	17.35
Feb-07	217.23	1.50	436.41	2.56	730.37	4.71	1466.87	9.54
Mar-07	213.31	1.39	428.95	2.06	717.16	3.53	1440.37	7.90
Apr-07	211.53	0.55	425.81	1.46	711.38	2.33	1425.28	4.60
May-07	2.88	1.24	7.17	2.57	13.14	3.96	27.85	8.15
Jun-07	1.90	1.20	6.17	2.57	12.14	3.96	26.85	8.15
Jul-07	1.15	0.95	5.17	2.55	11.14	3.96	25.85	8.15
Aug-07	214.91	0.91	432.91	2.48	724.85	4.00	1454.83	8.21
Sep-07	216.59	2.29	432.36	2.53	723.85	4.00	1453.83	8.21
Oct-07	215.99	1.09	433.11	2.23	722.47	3.65	1446.23	7.15
Nov-07	215.08	0.96	432.13	2.19	721.48	3.64	1445.24	7.15
Dec-07	0.63	0.66	2.63	1.95	5.85	3.51	14.26	7.06
Jan-08	230.31	2.85	464.45	5.54	778.18	8.97	1562.46	17.34
Feb-08	217.23	1.50	436.39	2.55	730.34	4.66	1466.78	9.41
Mar-08	213.31	1.39	428.92	2.05	717.16	3.57	1440.44	7.78
Apr-08	211.53	0.55	425.79	1.44	711.43	2.29	1425.35	4.65
May-08	5.47	1.33	12.77	2.64	22.87	4.03	47.90	8.50
Jun-08	4.47	1.33	11.77	2.64	21.87	4.03	46.90	8.50
Jul-08	3.47	1.33	10.77	2.64	20.87	4.03	45.90	8.50
Aug-08	216.49	1.30	438.41	2.66	734.59	4.11	1474.86	8.53
Sep-08	215.74	1.17	437.41	2.66	733.59	4.11	1473.86	8.53
Oct-08	215.99	1.09	433.10	2.22	722.48	3.73	1446.21	7.12
Nov-08	215.08	0.96	432.12	2.19	721.49	3.72	1445.21	7.11
Dec-08	0.63	0.66	2.63	1.95	5.85	3.51	14.26	7.06
Jan-09	230.31	2.85	464.44	5.54	778.24	8.97	1562.49	17.40
Feb-09	217.23	1.50	436.41	2.55	730.45	4.71	1466.81	9.59
Mar-09	213.31	1.39	428.92	2.01	717.22	3.56	1440.30	7.79
Apr-09	211.53	0.55	425.80	1.42	711.47	2.35	1425.08	4.64
May-09	5.47	1.33	12.77	2.64	22.87	4.03	47.90	8.50
Jun-09	4.47	1.33	11.77	2.64	21.87	4.03	46.90	8.50
Jul-09	3.47	1.33	10.77	2.64	20.87	4.03	45.90	8.50
Aug-09	216.49	1.30	438.42	2.69	734.59	4.07	1474.85	8.55
Sep-09	215.74	1.17	437.42	2.69	733.59	4.07	1473.85	8.55

Table 23. FIVE MONTH COURSE OFFERED TWICE A YEAR

	Current CCC		15% PCS or TDY Enroute		30% PCS or TDY Enroute		50% PCS or TDY Enroute		100% PCS or TDY Enroute	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
Oct-05	143.32	19.03	10.36	1.81	36.93	3.92	80.75	6.82	80.75	6.82
Nov-05	440.17	25.23	52.15	3.84	118.57	7.75	215.46	13.07	215.46	13.07
Dec-05	510.39	33.98	42.27	3.89	111.17	7.77	211.58	13.24	211.58	13.24
Jan-06	1526.98	87.69	109.53	6.06	256.52	12.21	461.94	20.29	461.94	20.29
Feb-06	1846.92	105.55	88.74	5.93	232.38	12.06	435.43	20.11	435.43	20.11
Mar-06	1801.07	83.43	120.20	6.99	283.71	13.92	510.59	23.11	510.59	23.11
Apr-06	1648.24	85.44	94.02	6.34	241.72	12.75	447.99	21.14	447.99	21.14
May-06	1712.18	81.25	105.97	6.32	253.66	12.38	463.20	20.77	463.20	20.77
Jun-06	1730.53	94.15	99.34	6.04	250.72	12.08	466.58	20.23	466.58	20.23
Jul-06	1560.73	81.88	84.96	5.81	214.45	11.55	394.88	19.25	394.88	19.25
Aug-06	1600.77	85.63	103.67	6.47	271.33	12.92	506.07	21.60	506.07	21.60
Sep-06	1976.89	111.96	77.25	5.97	197.47	12.03	365.52	20.08	365.52	20.08
Oct-06	143.68	18.67	10.47	1.82	37.13	3.82	80.94	6.53	80.94	6.53
Nov-06	441.21	26.45	52.18	3.84	118.38	7.45	215.13	12.56	215.13	12.56
Dec-06	510.85	34.11	42.26	3.87	111.09	7.63	211.49	12.78	211.49	12.78
Jan-07	1527.86	88.80	109.69	6.22	256.73	12.31	462.01	20.46	462.01	20.46
Feb-07	1849.74	105.78	88.92	6.15	232.55	12.24	435.49	20.35	435.49	20.35
Mar-07	1805.68	84.53	120.19	6.77	283.81	13.48	510.60	22.47	510.60	22.47
Apr-07	1648.22	91.31	93.82	6.43	241.41	12.95	447.33	21.49	447.33	21.49
May-07	1710.20	86.14	105.95	6.43	253.91	12.78	463.46	21.45	463.46	21.45
Jun-07	1729.90	92.60	99.38	6.01	250.93	12.06	466.95	19.91	466.95	19.91
Jul-07	1562.81	80.19	85.28	5.89	215.03	11.57	395.89	19.19	395.89	19.19
Aug-07	1606.11	81.97	104.01	6.48	272.24	12.90	507.54	21.58	507.54	21.58
Sep-07	1981.40	110.38	77.33	5.91	197.65	11.84	366.01	19.87	366.01	19.87
Oct-07	143.73	18.55	10.33	1.77	37.14	3.80	81.09	6.52	81.09	6.52
Nov-07	439.20	26.12	52.21	4.04	118.75	8.04	215.94	13.24	215.94	13.24
Dec-07	510.01	34.46	42.32	4.02	111.26	8.04	212.09	13.39	212.09	13.39
Jan-08	1528.58	91.94	109.72	6.20	256.75	12.36	462.19	20.55	462.19	20.55
Feb-08	1849.16	112.35	88.93	6.08	232.59	12.38	435.78	20.48	435.78	20.48
Mar-08	1800.64	87.32	120.34	6.95	283.95	13.87	510.97	23.26	510.97	23.26
Apr-08	1648.66	89.61	94.02	6.53	241.64	13.08	447.87	21.88	447.87	21.88
May-08	1712.17	85.85	105.76	6.34	253.78	12.53	463.30	21.39	463.30	21.39
Jun-08	1730.05	95.22	99.05	5.87	250.36	11.67	466.04	19.89	466.04	19.89
Jul-08	1562.23	85.40	84.75	5.80	214.29	11.50	394.64	19.15	394.64	19.15
Aug-08	1604.81	83.46	103.48	6.36	271.40	12.91	505.93	21.40	505.93	21.40
Sep-08	1982.08	112.33	77.06	5.87	197.17	11.76	365.18	19.62	365.18	19.62
Oct-08	143.77	18.94	10.44	1.83	37.14	4.04	81.16	6.93	81.16	6.93
Nov-08	440.10	26.23	52.08	3.80	118.17	7.48	215.09	12.67	215.09	12.67
Dec-08	510.03	35.10	42.14	3.83	110.73	7.69	211.27	12.97	211.27	12.97
Jan-09	1524.93	87.52	109.46	6.09	256.11	12.35	461.28	20.68	461.28	20.68
Feb-09	1842.44	106.62	88.68	6.00	231.89	12.37	434.65	20.65	434.65	20.65
Mar-09	1796.78	87.95	120.16	6.88	283.77	13.78	510.69	23.21	510.69	23.21
Apr-09	1645.84	89.32	93.95	6.20	241.67	12.50	448.00	21.04	448.00	21.04
May-09	1709.01	83.50	105.90	6.27	253.83	12.59	463.34	21.16	463.34	21.16
Jun-09	1732.82	90.89	99.40	5.96	251.00	12.11	467.25	20.12	467.25	20.12
Jul-09	1566.44	82.37	85.26	5.91	215.17	11.75	396.19	19.54	396.19	19.54
Aug-09	1605.46	83.74	168.57	15.96	332.58	19.50	560.13	25.92	560.13	25.92
Sep-09	1982.79	113.84	102.58	8.31	219.49	13.00	380.36	20.04	380.36	20.04

Table 24. CCC SIMULATION RESULTS

	CURRENT OBC		BOLC II AND III	
	MEAN	SD	MEAN	SD
Oct-05	858.45	54.21	211.64	15.83
Nov-05	1242.72	61.33	733.40	43.21
Dec-05	1255.48	61.35	869.15	47.58
Jan-06	2518.34	97.46	2061.00	79.92
Feb-06	2495.86	83.97	2381.64	82.77
Mar-06	3002.85	96.42	3292.90	98.59
Apr-06	2774.92	104.16	3309.87	98.19
May-06	2677.86	87.65	3562.75	100.07
Jun-06	2727.27	90.64	3205.74	85.27
Jul-06	2992.59	87.18	3638.00	103.93
Aug-06	3149.47	97.28	3942.80	113.36
Sep-06	2855.52	94.67	4245.93	124.95
Oct-06	859.16	51.58	210.47	16.02
Nov-06	1243.43	58.43	733.08	43.67
Dec-06	1256.11	58.48	868.90	48.15
Jan-07	2517.74	91.46	2063.10	82.33
Feb-07	2493.83	81.73	2384.20	86.08
Mar-07	3000.09	95.52	3297.17	104.85
Apr-07	2770.71	102.19	3312.96	103.24
May-07	2676.01	90.18	3565.39	104.77
Jun-07	2729.27	91.29	3206.45	89.55
Jul-07	2993.39	84.00	3636.27	103.96
Aug-07	3149.99	95.90	3937.93	114.82
Sep-07	2855.79	92.99	4241.50	125.08
Oct-07	859.81	53.66	211.23	16.26
Nov-07	1245.09	60.99	733.33	44.63
Dec-07	1258.11	61.20	869.52	49.07
Jan-08	2520.91	92.32	2064.09	82.85
Feb-08	2496.89	81.98	2385.35	86.20
Mar-08	3004.43	95.69	3297.54	104.52
Apr-08	2774.33	104.45	3315.23	103.65
May-08	2678.35	89.51	3568.72	106.36
Jun-08	2728.69	91.22	3209.07	90.02
Jul-08	2992.50	84.94	3637.45	108.84
Aug-08	3148.09	95.63	3939.78	120.42
Sep-08	2854.90	92.33	4243.45	129.36
Oct-08	858.00	53.84	211.01	16.68
Nov-08	1243.17	60.64	733.80	44.19
Dec-08	1256.10	60.58	869.52	48.47
Jan-09	2520.28	96.90	2062.17	79.66
Feb-09	2495.99	84.30	2382.96	83.56
Mar-09	3002.59	97.10	3294.73	102.08
Apr-09	2773.89	106.68	3311.67	100.56
May-09	2676.40	92.53	3562.27	104.08
Jun-09	2727.97	93.33	3203.30	89.67
Jul-09	2987.32	86.31	3632.52	106.30
Aug-09	3145.14	97.04	3935.61	114.63
Sep-09	2852.23	95.67	4239.48	126.19

Table 25. OBC AND BOLC SIMULATION RESULTS

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